

Amendments to the Claims

1. (Currently Amended) A method for controlling cooling/heating of a heat pump system, the method comprising ~~the steps of~~:

(a) controlling a compressor so that a flow rate of a refrigerant is reduced when the heat pump system is switched from a cooling mode to a heating mode or from the heating mode to the cooling mode; and

(b) controlling a four-way valve so that a flow direction of the refrigerant is changed into an opposite direction when the flow rate of the refrigerant after the step (a) is reduced[[.]];

wherein the four-way valve in the step (b) is controlled to convert the flow direction of the refrigerant into the opposite direction, in case that the flow rate of the refrigerant is reduced to less than a designated rate.

2. (Original) The method as set forth in claim 1,
wherein a power supply to the compressor is switched off in the step (a) so that the flow rate of the refrigerant is reduced.

3. (Original) The method as set forth in claim 2,
wherein a power supply to the compressor is switched on after the step (b).

4. (Original) The method as set forth in claim 1,
wherein the operation of the compressor is converted into a stage having a lower state than that of a stage at a point of time when the heat pump system is switched from the cooling mode to the heating mode or from the heating mode to the cooling mode so that the flow rate of the refrigerant is reduced.

5. (Original) The method as set forth in claim 4, further comprising the step of (c) controlling the compressor to re-operate in a normal state after the step (b).

6. (Original) The method as set forth in claim 1, wherein the four-way valve in the step (b) is controlled to convert the flow direction of the refrigerant into the opposite direction, in case that a designated time from the step (a) has elapsed.

7. (Canceled)

8. (Currently Amended) ~~The method as set forth in claim 1,~~ A method for controlling cooling/heating of a heat pump system, the method comprising:

(a) controlling a compressor so that a flow rate of a refrigerant is reduced when the heat pump system is switched from a cooling mode to a heating mode or from the heating mode to the cooling mode; and

(b) controlling a four-way valve so that a flow direction of the refrigerant is changed into an opposite direction when the flow rate of the refrigerant after the step (a) is reduced;

wherein the four-way valve in the step (b) is controlled to convert the flow direction of the refrigerant into the opposite direction, in case that the flow rate of the refrigerant reaches zero (0).

9. (Currently Amended) ~~The method as set forth in claim 1,~~ A method for controlling cooling/heating of a heat pump system, the method comprising:

(a) controlling a compressor so that a flow rate of a refrigerant is reduced when the

heat pump system is switched from a cooling mode to a heating mode or from the heating mode to the cooling mode; and

(b) controlling a four-way valve so that a flow direction of the refrigerant is changed into an opposite direction when the flow rate of the refrigerant after the step (a) is reduced;

wherein the four-way valve in the step (b) is controlled such that power is supplied to the four-way valve when the heat pump system is switched from the cooling mode to the heating mode, and a power supply to the four-way valve is cut off when the heat pump system is switched from the heating mode to the cooling mode.

10. (Currently Amended) A method for controlling cooling/heating of a heat pump system, the method comprising the steps of:

(a) stopping a compressor when the heat pump system is switched from a cooling mode to a heating mode or from the heating mode to the cooling mode;

(b) operating a four-way valve so as to convert a flow direction of the refrigerant after a designated time from the stoppage of the compressor in the step (a) elapses; and

(c) re-operating the compressor after the step (b).

wherein the four-way valve in the step (b) is controlled to convert the flow direction of the refrigerant into an opposite direction, in case that a flow rate of the refrigerant is reduced to less than a designated rate.

11. (New) A heat pump system, comprising:
a compressor; and
a four-way valve connected to the compressor for changing a flow direction of a refrigerant flowing through the heat pump system;

wherein the compressor is controlled so that a flow rate of the refrigerant is reduced

when the heat pump system is switched from a cooling mode to a heating mode or from the heating mode to the cooling mode;

wherein the four-way valve is controlled so that the flow direction of the refrigerant is changed into a first direction when the flow rate of the refrigerant is reduced;

wherein the four-way valve is controlled to convert the flow direction of the refrigerant into a second direction, in case that the flow rate of the refrigerant is reduced to less than a designated rate.

12 (New) The heat pump system of claim 11, wherein a power supply to the compressor is switched off so that the flow rate of the refrigerant is reduced.

13. (New) The heat pump system of claim 11, wherein the operation of the compressor is converted into a stage having a lower state than that of a stage at a point in time when the heat pump system is switched from the cooling mode to the heating mode or from the heating mode to the cooling mode so that the flow rate of the refrigerant is reduced.

14. (New) The heat pump system of claim 13, wherein the compressor is controlled to re-operate in a normal state after the flow rate of the refrigerant is reduced.

15. (New) The heat pump system of claim 11, wherein a the four-way valve is controlled to convert the flow direction of the refrigerant into the second direction, in case that a designated time has elapsed.